CLAIMS:

1. A method for controlling the optical output power from an optical amplifier arrangement that includes a rare-earth doped fiber for imparting gain to an optical input signal propagating therethrough, a pump source for supplying pump power to the rare-earth doped fiber, a tap for receiving a portion of the output power generated by the rare-earth doped fiber and converting the portion of the output power to a control signal, and a controller receiving the control signal and generating a bias current in response thereto for driving the pump source, the method comprising the steps of:

receiving an optical input signal being amplitude modulated at a prescribed frequency; and

adjusting a frequency response of the optical amplifier arrangement by limiting a rate at which the output power changes.

2. The method of claim 1 further comprising the steps of monitoring the output power and automatically adjusting a slew rate limit associated with the controller in accordance therewith.

3. The method of claim 1 further comprising the steps of monitoring the power of the optical input signal and automatically adjusting a slew rate limit associated with the controller in accordance therewith.

4. The method of claim 3 wherein the step of automatically adjusting the controller includes the step of automatically lowering a slew rate limit of the controller when the power of the input signal fluctuates at a rate greater than a prescribed value.

5. The method of claim 4 further comprising the step of automatically increasing the slew rate limit to a previous value when the power of the input signal no longer fluctuates at a rate greater than the prescribed value.

6. The method of claim 3 wherein the step of monitoring the power of the optical input signal includes the step of calculating the fast-Fourier transform of the optical input signal and automatically adjusting the slew rate limit in accordance therewith.

7. A method for controlling the optical output power from an optical amplifier arrangement that includes a rare-earth doped fiber for imparting gain to an optical input signal propagating therethrough, a pump source for supplying pump power to the rare-earth doped fiber, a tap for receiving a portion of the output power generated by the rare-earth doped fiber and converting the portion of the output power to a control signal, and a controller receiving the control signal and generating a bias current in response thereto for driving the pump source, the method comprising the steps of:

receiving an optical input signal being amplitude modulated at a prescribed frequency; and

adjusting a slew rate of the output power using the controller, so that a control loop resonant frequency is offset from the prescribed frequency at which the optical input signal is being modulated.

8. The method of claim 7 further comprising the steps of monitoring the output power and automatically adjusting the slew rate in accordance therewith.

9. The method of claim 7 further comprising the steps of monitoring the power of the optical input signal and automatically adjusting the slew rate in accordance therewith.

10. The method of claim 9 wherein the step of adjusting the slew rate includes the step of automatically lowering the slew rate when the power of the input signal fluctuates at a rate greater than a prescribed value.

11. The method of claim 10 further comprising the step of automatically increasing the slew rate to a previous value when the power of the input signal no longer fluctuates at a rate greater than the prescribed value.

12. The method of claim 9 wherein the step of monitoring the power of the optical input signal includes the step of calculating the fast-Fourier transform of the optical input signal and automatically adjusting the slew rate in accordance therewith.

13. The method of claim 7 further comprising the step of maintaining the optical output power at a substantially constant value.

14. The method of claim 7 further comprising the step of maintaining the arrangement at a substantially constant gain.

15. An optical amplifier arrangement comprising:

a rare-earth doped fiber for imparting gain to an optical input signal propagating therethrough;

a pump source for supplying pump power to the rare-earth doped fiber;

a tap for receiving a portion of the output power generated by the rare-earth doped fiber and converting the portion of the output power to a control signal; and

a controller receiving the control signal and generating a bias current in response thereto for driving the pump source, the controller including a user-adjustable slew rate limiter for selectively adjusting the slew rate of the output power.

16. The optical amplifier arrangement of claim 15 wherein the rare-earth doped fiber is doped with erbium.

17. The optical amplifier arrangement of claim 15 wherein the user-adjustable slew rate limiter is hardware-controllable.

18. The optical amplifier arrangement of claim 15 wherein the user-adjustable slew rate limiter is software-controllable.

19. The optical amplifier arrangement of claim 15 further comprising means for monitoring the output power and automatically adjusting the slew rate in accordance therewith.

20. The optical amplifier arrangement of claim 15 further comprising means for monitoring the power of the optical input signal and automatically adjusting the slew rate in accordance therewith.

21. The optical amplifier arrangement of claim 20 wherein the means for automatically adjusting the slew rate includes means for automatically lowering the slew rate when the power of the input signal fluctuates at a rate greater than a prescribed value.

22. The optical amplifier arrangement of claim 21 further comprising means for automatically increasing the slew rate to a previous value when the power of the input signal no longer fluctuates at a rate greater than the prescribed value.

23. The optical amplifier arrangement of claim 20 wherein the means for monitoring the power of the optical input signal includes means for calculating the fast-Fourier transform of the optical input signal and automatically adjusting the slew rate in accordance therewith.

24. The optical amplifier arrangement of claim 15 wherein the controller is configured to maintain the optical output power at a substantially constant value.

25. The optical amplifier arrangement of claim 15 wherein the controller is configured to maintain the arrangement at a substantially constant gain.